

- 17 -

CLAIMS:

1. A device (1, 2, 3, 4) comprising:
 - a frame (42, 84, 106, 201) comprising a static magnetic pole (48, 82, 100, 202),
 - a movable member (44, 74, 114, 400) relatively to the frame (42, 84, 106, 201), the movable member (44, 74, 114, 400) comprising a moving magnetic pole (46, 80, 102, 209, 210), the static magnetic pole (48, 82, 100, 202) and the moving magnetic pole (46, 80, 102, 209, 210) being magnetically coupled in some position of the movable member (44, 74, 114, 400),
 - a piezosensitive element (50, 78, 108, 300, 232) so that the force due to the magnetic coupling between the moving magnetic pole (46, 80, 102, 209, 210) and the static magnetic pole (48, 82, 100, 202) reacts on the piezosensitive element (50, 78, 108, 300, 232), and
 - means (52, 54, 56, 58) for outputting an electric signal from the piezosensitive element (50, 78, 108, 300, 232), the signal being useful in determining the position and/or the speed and/or the direction of the movable member (44, 74, 102).
2. The device as claimed in claim 1, characterized in that the piezosensitive element (50, 78, 108, 300) is fixed to the frame (42, 84, 106, 201).
3. The device as claimed in one of the preceding claims, characterized in that the static magnetic pole is a magnet (48, 82, 100).
4. The device as claimed in one of the preceding claims, characterized in that the frame is a housing (42) of a motor (32), in that the movable member is a rotor

- 18 -

(44) of the motor (32) and in that the moving magnetic pole is a pole (46) of the rotor (44).

5. The device as claimed in one of the claims 1 to 3, characterized in that the frame is a housing (84), in that the movable member is a shaft (74) coupled to a rotor (72) of a motor (70) and in that the moving magnetic pole (80) is provided on the shaft (74).

6. The device as claimed in one of the claims 1 to 3, characterized in that the frame is a housing (106), in that the movable member is a rotor of a motor (104) and in that the moving magnetic pole is a pole (102) of the rotor.

7. The device as claimed in one of claims 4 to 5, characterized in that it comprises:

- a first static magnetic pole and a first piezosensitive element,
- a second static magnetic pole and a second piezosensitive element,

the static magnetic poles being fixed to the frame via the piezosensitive elements so that the force due to the magnetic coupling between the moving magnetic poles and the static magnetic poles stresses the piezosensitive element, these poles being disposed with an angular offset different from 180°.

8. The device as claimed in claim 7, characterized in that the angular offset is equal to about 90°.

9. The device as claimed in claim 1, characterized in that the frame is a stator tube (201) of a switching flux linear motor, in that the movable member is a sliding element of the switching flux linear motor, in that the static magnetic pole is a pad (202) made of ferromagnetic material and in that the moving magnetic pole is a magnetized element (209, 210).

- 19 -

10. The device as claimed in claim 9, characterized in that the piezosensitive element (300) is fixed to the frame (201).

11. The device as claimed in claim 9, characterized in that the moving magnetic pole (210) comprises a permanent magnet (231) and a piece of ferromagnetic material (230a), the piezosensitive element (232) being sandwiched between the permanent magnet (231) and the piece of ferromagnetic material (230a).

12. The device as claimed in claim 1, characterized in that the frame is a stator-frame of a rotating brushless motor, in that the movable member is the rotor of the rotating brushless motor, comprising at least a permanent magnet being the moving magnetic pole, and in that the static magnetic pole is a pad made of ferromagnetic material secured on the stator-frame.

13. The device as claimed in claim 12, characterized in that the piezosensitive element is sandwiched between the static magnetic pole and the stator-frame.

14. The device as claimed in claim 12, characterized in that the piezosensitive element is sandwiched between the permanent magnet and a piece of ferromagnetic material.

15. The device as claimed in one of the preceding claims, characterized in that the means for outputting an electric signal from the piezosensitive element comprise leads (52, 54), an amplifier (56) and a processing circuit (58).

16. The device as claimed in one of the preceding claims, characterized in that the piezosensitive element is a piezoelectric element.

- 20 -

17. The device as claimed in one of the preceding claims, characterized in that the piezosensitive element is a resistor.
18. A powered assembly (10) including:
- an object (16) that is selected from the group consisting of window coverings, roller blinds, awnings, skylight coverings, curtains, and screens and that can be moved between a first configuration and a second configuration, and
 - a device as claimed in one of the preceding claims, the movable element of the device being mechanically coupled to the object (16).
19. Use of an electric signal output from a device according to one of the claims 1 to 17 for controlling the electric power supply of an element of a motor.